

CONTAINER WITH COVER

Field of the Invention

This invention relates to the field of portable insulated containers.

Background of the Invention

Soft sided insulated containers have become popular for carrying either articles that may best be served cool, such as beverages or salads, or warm, such as appetizers, hot dogs, and so on. Such containers are frequently used to carry liquids, whether hot liquids, such as soup containers, coffee or tea, or cold liquids such as beer, soft drinks, or other carbonated beverages, juices and milk. The containers are typically made in a generally cube-like or rectangular parallelepiped shape, whether of sides of equal length or not, having a base, four upstanding walls, and a top. The top is generally a lid which opens to permit articles to be placed in, or retrieved from, the container.

While soft sided containers are, in general, quite convenient, the flexible structure may not provide adequate protection for items stored within the container. For example, sandwiches or other non-durable items may become crushed or squished when the container is carried or otherwise transported. It may be desirable that other objects that may be carried in a cooler, such as, for example, egg sandwiches or cucumber sandwiches, or items of a similar nature for a picnic, be kept cool before being eaten. Alternatively, if one has warmed canapés or hors d'oeuvres, it may be desirable that those appetizers be kept warm until served. However, such items as sandwiches or pastries may tend not to be overly amenable to immersion in water, and, even if placed in a supposedly waterproof bag or plastic container may tend to become damp or clammy. Further, sandwiches or appetizers tend not to be particularly resilient, and once squashed may tend not to return to their former state.

To alleviate this problem, a rigid insert such as a plastic receptacle, which may conform to the interior walls of the soft sided container, may be used to impart structural rigidity to the soft sided container. As a result of this increased rigidity, items placed within the rigid insert may be less apt to be affected by bumps or other forces applied to the soft sided container.

While items placed within the rigid insert may be provided with a measure of protection from external forces, they may be adversely affected by other items located within the rigid insert. For example, more durable items such as bottles and cans, may come into contact with less durable items such as sandwiches and buns when the items are jostled during transport of the container. This could cause the less durable items to become damaged.

The contents of items such as soft drink or beer bottles, may also be affected. As the container is moved, any item contained therein may move, and contact a side of the rigid receptacle, or contact other items located within the container. This movement may lead to damage or breakage of the items themselves. Movement may also cause the contents of durable items such as soft drink and beer bottles to become agitated, causing the contents of such items to be expressed in an undesirable spray when opened.

Another possible disadvantage of such soft sided containers is that contained items may tip or fall from a preferred orientation when the container is moved. For example, a cork partially inserted into the spout of a previously opened wine bottle may become dislodged if the bottle is knocked from a generally vertical orientation to a generally horizontal orientation. As a result, the contained wine may be released within the rigid insert, contaminating both the insert and any other items located therein.

For all of these reasons, in addition to providing a stiff reinforcement to protect contents from damage due to external causes, it may also be desirable to have an internal bracing or reinforcement member to aid in the protection of the various objects to be protected from each other.

Further still, in soft sided coolers heretofore, the closure of the lid has tended to depend on the closing of a zipper, often a zipper running around three sides of a rectangle, with the fourth side being hinged. The lid may rest on a foam lip or pad. When a container of this nature falls over, its resistance to the spilling of liquid through the closure may not be as effective as might be desired. It might be advantageous to have a somewhat tighter seal, such as might be made by stiffer materials in an interference fit. A soft-sided panel would not normally be sufficiently stiff to achieve such a seal. The use of a seal in this nature, might also permit the elimination of the main peripheral zipper of the main closure of the container.

Further, it may be advantageous to provide a mounting for a thermal storage device, such as a ice pack or an exothermic package, that could be carried in the container. It would be advantageous for the thermal storage element to be removable, to permit it to be re-frozen in the freezer or refrigerator, or reheated, or recharged, as the case may be. Alternatively, it may be desirable to be able to choose between a number of various positions for the thermal storage element, depending on what might be carried in the insulated container. That is, in some cases it might be desirable to have the thermal storage element below objects in the insulated, sometimes above, and sometimes in the middle. Further still, it might be advantageous to be able to remove the thermal storage element from the insulated container entirely, and to use it as a flat surface upon which to serve or eat objects taken out of the container. This role might be advantageously enhanced by forming a recess, or recesses in the thermal storage element such as might be used as drink holders, or retainers for drinks or other objects, to prevent them from sliding in the event the surface is not precisely level (as may be the case on a picnic, or in a vehicle, or from spilling if jostled slightly, in the event the vehicle is moving). Further still, it may be advantageous to permit the thermal storage element to be held in the lids of the container when the container is open, to serve either of the above mentioned roles.

Summary of the Invention

In an aspect of the invention there is an insulated container assembly. The insulated container assembly has a first portion and a second portion co-operable therewith. The first portion has a soft-sided insulated wall structure and a receptacle therein. The receptacle has an opening, and the opening has a land adjacent thereto. The second portion is movably connected to the first portion. The second portion includes a closure member operable to control access to the receptacle. The closure member includes a stiffened member operable to engage the land in an interference fit.

In another feature of that aspect of the invention, the land and the stiffened member are co-operable to form a seal. In yet another feature, the stiffened member includes a bead and the bead is engageable with the land. In still another feature, the stiffened member is a surround. The receptacle is made of a stiffer material than the soft sided wall structure, and the land is a region of the receptacle extending about the opening. In still yet another feature, when the surround engages the land, hoop stresses are developed in at least one of (a) the land; and (b) the surround. In a further feature,

when the surround engages the land, a compressive hoop stress is generated in one of (a) the land; and (b) the surround, and tensile hoop stresses are generated in the other.

5 In another feature, the insulated container assembly includes a removable thermal storage element. In yet another feature, the thermal storage element is matingly engageable with the second portion. In still another feature, the thermal storage element is matingly engageable with the stiffened member of the second portion of the insulated container assembly. In still yet another feature, the thermal storage element is alternately locatable in the second portion of the container assembly and in the first portion of the
10 container assembly. In a further feature, when the closure member is in an open position, and the thermal storage member is engaged in the second portion, the thermal storage member presents a support surface for objects withdrawn from the first portion of the container assembly. In still a further feature, the thermal storage member includes a flat surface, and the thermal storage member is movable to permit the flat surface to act as a
15 support surface for objects removed from the first portion of the container assembly.

In yet a further feature, the thermal storage member includes at least one recess formed therein. In still yet a further feature, the thermal storage container has at least one cup-holder recess formed therein. In another feature, the thermal storage container has an
20 internal cavity for containing a thermal storage medium, and the cavity is refillable. In yet another feature, the insulated container assembly has a mechanical attachment element operable to secure the second portion in a closed position relative to the first portion. In still another feature, the insulated container assembly has a grip member by which to urge the stiffened member to a disengaged position relative to the land. In
25 another feature, the land and the stiffened member define an engagement interface of the second portion of the container assembly with the first portion of the container assembly, and the interface is zipperless.

In another aspect of the invention there is an insulated, soft-sided container
30 assembly. The container has a body assembly and a lid assembly hingedly joined to the body assembly. The body assembly includes a soft-sided outer casing and an internal hard-shell receptacle. The receptacle has a mouth. The lid includes a formed structural member having a periphery for mating engagement with the mouth of the receptacle. The structural member is engageable in an interference fit with the mouth of the
35 receptacle.

In another feature of that aspect of the invention, the structural member has a deformable bead mounted thereto for contacting the receptacle. In still another feature, the receptacle includes a receptacle wall region extending peripherally to define the mouth, and when matingly engaged, the structural member is biased toward the peripherally extending wall region of the receptacle. In yet another feature, the insulated container assembly has a removable thermal storage element. The thermal storage element and the structural member of the lid are releasably engageable. In still yet another feature, the thermal storage element is variably positionable within the container assembly. In a further feature, the thermal storage element is variably positionable within a set of positions in the container assembly. The set of positions includes at least a first position releasably engaged with the structural member, and a second position seated in the receptacle.

In still a further feature, the receptacle has a bottom wall and the thermal storage element is positionable in a set of positions within the container assembly. The set of positions includes a first position releasably engaged with the structural member, a second position nested above the bottom wall and a third position intermediate the first and second positions. In another feature, the insulated container assembly has a shelf positionable within the receptacle. In still another feature, the thermal storage element is placeable within the receptacle upon the shelf. In yet another feature, the lid has an outwardly facing surface, and the outwardly facing surface has at least one rebate formed therein for inhibiting movement of objects placed on the lid within the rebates.

In another aspect of the invention there is an insulated soft-sided container assembly. The container assembly has a soft sided insulated wall structure including a base panel, an upstanding sidewall, and a lid. The lid is hingedly mounted to the upstanding sidewall. A receptacle is mounted within the soft sided wall structure. The receptacle is made from a stiffer material than the soft-sided wall structure. The receptacle has a mouth. The lid has a stop for the mouth. The stop is made from a stiffer material than the soft-sided wall structure. The lid is movable between an open position and a closed position to control access to the receptacle. When the lid is in the closed position, the stop is engaged with the mouth in an interference fit.

In another feature of that aspect of the invention, the stop includes a moulded surround member having a peripherally outwardly facing surface. The surface has a contact region, and the surround member is resiliently displaceable on engagement with

the receptacle. In another feature, the surround includes an inwardly facing peripheral surface, and a releasably engageable thermal storage element is mounted inwardly of the inwardly facing peripheral surface.

5 In another aspect of the invention there is the combination of a thermal storage element and a thermal storage element retention fitting for an insulated container. The container has at least one substantially planar panel, wherein the thermal storage element has a hollow body for containing a thermal storage medium liquid, a port by which to introduce the thermal storage medium liquid into the hollow body, a removable closure member operable to control access to the hollow body, and at least one engagement fitting operable releasably to mate the thermal storage element with the thermal storage retention apparatus. The thermal storage retention apparatus is mounted to form at least a portion of the substantially planar panel.

15 **Brief Description of the Drawings**

These aspects and other features of the invention can be understood with the aid of the following illustrations of a number of exemplary, and non-limiting, embodiments of the principles of the invention in which:

20 Figure 1a shows an isometric view taken from in front, above, and to the left, of an embodiment of a container assembly according to an aspect of the present invention, the container assembly being in a closed position;

25 Figure 1b shows the container assembly of Figure 1a in an open, exploded position showing a soft-sided wall structure, a receptacle for seating in the soft-sided wall structure, and a multi-position dividing partition for seating in the receptacle;

Figure 1c shows the container assembly of Figure 1a with an auxiliary portion thereof in an open position;

30 Figure 2a shows a front view of the container assembly of Figure 1a;

Figure 2b shows a left hand side view of the container assembly of Figure 1a;

Figure 2c shows a right hand side view of the container assembly of Figure 1a;

Figure 2d shows a rear view of the container assembly of Figure 1a;

Figure 2e shows a top view of the container assembly of Figure 1a;

35 Figure 2f shows a bottom view of the container assembly of Figure 1a;

Figure **2g** shows a partial sectional view of the structure of the container assembly of Figure **1a**;

Figure **2h** shows an alternate multi-position dividing partition for container assemblies similar to the container of Figure **1a**;

5 Figure **2i** shows an alternate three-panel, two fold, multi-partition dividing partition for the container assembly of Figure **1a**;

Figure **2j** is a perspective view of the multi-position dividing partition of Figure **1b**;

Figure **2k** is a hinge detail of the dividing partition of Figure **2j**;

10 Figure **2l** is a cross-sectional detail taken on arrow '2l' of Figure **2k**;

Figure **3a** shows an isometric view of a receptacle for use in the container assembly of Figure **1a**, taken from above one corner thereof;

Figure **3b** shows an opposite isometric of the receptacle of Figure **3a**;

Figure **3c** shows a side elevation of the receptacle of Figure **3a**;

15 Figure **3d** shows an end elevation of the receptacle of Figure **3a**;

Figure **3e** shows a top view of the receptacle of Figure **3a**;

Figure **3f** shows a bottom view of the receptacle of Figure **3a**;

Figure **3g** shows an isometric view of the receptacle of Figure **3a** with a multi-position dividing partition mounted therein;

20 Figure **3h** shows a top view of the receptacle and dividing partition of Figure **3g** with the partition in a substantially planar mid-height position inside the receptacle;

Figure **3i** shows a top view of the receptacle and dividing partition of Figure **3g** with the partition in a half vertical, half horizontal position inside the
25 receptacle;

Figure **3j** shows a top view of the receptacle and dividing partition of Figure **3g** with the partition in a three quarter horizontal, one quarter vertical position inside the receptacle;

30 Figure **3k** shows a top view of the receptacle and dividing partition of Figure **3g** with the partition in a half horizontal, centered position inside the receptacle with both end quarters oriented vertically;

35 Figure **3l** shows a top view of the receptacle and dividing partition of Figure **3g** with the partition in a half horizontal, centered position, with one perforated panel portion and one solid panel portion being oriented horizontally;

Figure 3m shows a top view of the receptacle and dividing partition of Figure 3g with one quarter of the partition in a planar horizontal position, and the remainder in vertical orientation inside the receptacle;

Figure 3n shows a top view of the receptacle and dividing partition of Figure 3g with one quarter of the partition in a substantially planar, side offset mid-height position inside the receptacle;

Figure 4a shows a top view of a lid structural member and thermal storage element subassembly of the container assembly of Figure 1a;

Figure 4b shows a view from above of the lid structural member of Figure 4a;

Figure 4c shows a scab cross-section of Figure 4a on section '4c-4c';

Figure 4d shows an alternate cross-section to that of Figure 4c;

Figure 4e shows an alternate cross-section of a sealing portion for the cross-section of Figure 4c or Figure 4d;

Figure 4f shows an alternate installation of thermal storage member in the receptacle of the container assembly of Figure 1a;

Figure 4g shows an alternate installation of thermal storage members in a lid structural member similar to Figure 4a;

Figure 5a is a diagonal perspective view from one corner of a thermal storage element as shown in Figure 4a;

Figure 5b is an opposite diagonal perspective view of the thermal storage member of Figure 5a;

Figure 5c is a top view of the thermal storage member of Figure 5a;

Figure 5d is a bottom view of the thermal storage member of Figure 5a;

Figure 5e is a filler end view of the thermal storage element of Figure 5a;

Figure 5f is an opposite end view to that of Figure 5e;

Figure 6a is a view of an alternate foam lid construction for the container assembly of Figure 1a;

Figure 6b is a top view of an alternate receptacle structure to that of Figure 3a.

Figure 7a shows a perspective view from above, in front, and to one corner of an alternate embodiment of container assembly to that of Figure 1a;

Figure 7b shows a perspective view of the container assembly of Figure 7a taken from the opposite upper diagonal prospect;

Figure 7c shows a perspective view from the front right corner, and above, of the container assembly of Figure 7a in an open condition;

Figure 7d shows a top view of the container assembly of Figure 7a;

Figure 7e shows a front view of the container assembly of Figure 7a;

Figure 7f shows a left hand side view of the container assembly of Figure 7a;
Figure 7g shows a right hand side view of the container of Figure 7a;
Figure 7h shows a rear view of the container assembly of Figure 7a;
Figure 7i shows a bottom view of the container of Figure 7a;
5 Figure 8a is a top view of the container assembly of Figure 7a in an open position;
Figure 8b is similar to Figure 8a, but with an internal divider member removed;
Figure 8c is similar to Figure 8a, but with an internal receptacle removed;
Figure 8d is a perspective view of the internal receptacle of Figure 8c;
10 Figure 8e is a top view of the receptacle of Figure 8d;
Figure 8f is a side view of the receptacle of Figure 8d;
Figure 8g is an end view of the receptacle of Figure 8d;
Figure 8h is a bottom view of the receptacle of Figure 8d;
Figure 9a shows a perspective view from above, in front, and to one corner of a
15 further alternate embodiment of container assembly to that of Figure 1a;
Figure 9b is a perspective view from above, in front, and to one corner of the container assembly of Figure 9a in an open position;
Figure 9c shows a front view of the container assembly of Figure 9a;
Figure 9d shows a left hand side view of the container assembly of Figure 9a;
20 Figure 9e shows a right hand side view of the container of Figure 9a;
Figure 9f shows a rear view of the container assembly of Figure 9a;
Figure 9g shows a bottom view of the container of Figure 9a;
Figure 9h is a side view of the container assembly of Figure 9a in an open position;
25 Figure 9i is a scab cross-section of a sidewall portion of the container assembly of Figure 9a;
Figure 9j is a cross-section of a lid portion of the container assembly of Figure 9a;

DETAILED DESCRIPTION OF THE INVENTION

30 The description that follows, and the embodiments described therein, are provided by way of illustration of an example, or examples of particular embodiments of the principles of the present invention. These examples are provided for the purposes of explanation, and not of limitation, of those principles and of the invention. In the
35 description, like parts are marked throughout the specification and the drawings with the same respective reference numerals. The drawings are not necessarily to scale and in

some instances proportions may have been exaggerated in order to more clearly depict certain features of the invention.

5 In the description and drawings herein, reference may be made to a cartesian coordinate system in which the vertical direction, or z-axis, extends in an up and down orientation from bottom to top. The x-axis extends in the shorter dimension of the container assembly, when fully expanded, running in the front-to-back direction. The y-axis extends cross-wise horizontally relative to the x-axis, running in the side-to-side direction. Unless noted otherwise, the terms "inside" and "outside", "inwardly" and
10 "outwardly", refer to location or orientation relative to the enclosed spaces of the first and second portions of the container assembly, as may be.

Referring to Figures 1a and 1b, and by way of a general overview, a container assembly is indicated generally as 20. Container assembly 20 has a first, or main portion
15 22, that may include an optional auxiliary portion 24 mounted on the forward face thereof. Main portion 22 includes an outer casing 26 in the nature of a soft-sided, insulated wall structure 28, and a reinforcement member, or stiff wall structure, in the nature of a relatively rigid, resilient, molded plastic tub, indicated as receptacle 30, mounted within soft-sided insulated wall structure 28. Receptacle 30 is watertight, and is
20 removable from within wall structure 28, and of container assembly 20 more generally, to facilitate washing thereof. When receptacle 30 is in place, container portion 22 is intended to be maintained in the shape shown in the Figures, and is not intended to be collapsible.

25 A second portion of container assembly 20 is indicated as a top panel, or lid 32, that has an internal structural member 34 for engagement with the upper portion of receptacle 30, thereby acting as a closure member to control access to the enclosed chamber 50 defined within receptacle 30. Internal structural member 34 has a peripherally extending seal member 210 for interferingly engaging the mouth of
30 receptacle 30. Lid 32 as such may tend to deter the egress of materials, such as liquids, that might otherwise occur when container assembly 20 is inadvertently tipped over or jostled excessively energetically. Internal structural member 34 also has a recess defined therein for receiving a removable and re-usable thermal storage member 40, such as may
35 be employed to influence the environmental condition inside chamber 50, or alternatively, may be remove and employed as a chilled (or warmed) element upon which to rest foods, such as, for example, appetizers, or beverages. Lid 32 may also include

such features as may permit lid 32 to provide a relatively stiff surface upon which to place objects, such as, for example, foods or beverages.

These assemblies of container assembly 20, are illustrated co-operatively in Figures 1a and 1b. They will now be described in greater detail.

First Portion 22

First insulated container portion 22 has an outer casing 26, an insert, namely receptacle 30, and a divider or partition 46. Outer casing 26 has a compartment 48 for receiving receptacle 30, and receptacle 30 has a chamber 50 which may be divided by placement of partition 46 therein. Partition 46 may be used to separate items placed within chamber 50. Items may also be retained by partition 46, as described in detail below. A closure member such as lid 32, attached to outer casing 26, may be used to enclose receptacle 30 within compartment 48. Figure 1a shows container assembly 20 with lid 32 in a closed position. An optional carrying means such as strap 54 may be attached to outer casing 26 to facilitate transport of container assembly 20.

Outer Casing 26

Outer casing 26 is preferably made of an insulative material for thermally insulating receptacle 30. The insulative material inhibits heat transfer between chamber 50 and the surroundings of container assembly 20. This may tend to help to maintain a preferred temperature of items such as food products stored within receptacle 30. For example, if items such as bottles of liquid 58, which are stored within chamber 50, have a lower temperature than the container assembly's surroundings, then the insulative material may reduce the rate of heat transfer to bottles of liquid 58, keeping the soft drink or wine at a low temperature for a longer period than if it were not placed within container assembly 20. When lid 32 is in a closed position, heat transfer may be inhibited to a greater extent.

The insulative material may additionally be soft, such as a resilient foam, so that the container may tend not to damage, or be damaged by, objects with which it may come into contact. If a suitable plastic or other material or stain resistant surface coating or surface treatment is used, then outer casing 26 may also be readily cleaned to remove dirt and other debris acquired through use.

Outer casing 26 preferably has an insulated bottom panel 60, and insulated wall panels, namely a front panel 62, a rear panel 64, and a pair of right and left hand side panels 66 and 68. In the description of the embodiments of the claimed invention, the choice of front and rear, left and right, orientations is arbitrary. Each panel 60, 62, 64, 66 and 68 is preferably located at substantially right angles to two adjacent wall panels. For example, panel 64 is located adjacent panel 66 at one end, and adjacent panel 68 at an opposite end. The bottom panel may be attached to all four panels 62, 64, 66 and 68, along edges thereof. The combination of panels 62, 64, 66 and 68, and bottom panel 60, define compartment 48. Bottom panel 60 and panels 62, 64, 66 and 68, each are preferably rectangular, with respective opposite panels 62 and 64, and 66 and 68, being congruent to one another. In this preferred configuration, compartment 48 has a generally cube-like or rectangular parallelepiped shape. Panels 62, 64, 66 and 68, and bottom panel 60 may be fastened to one another by sewing, gluing or some other suitable fastening means. Alternatively, two or more panels (including the bottom panel) may be formed from a single piece of material having one or more folds therein to define the two or more panels. In the preferred embodiment, the front, bottom and rear panels may be made from a single piece of insulated material. Lid 32 and an adjacent wall may also be formed from a single piece of material. For example, rear panel 64 and lid 32 may be formed from a single piece of material having a fold therein to define rear panel 64 and lid 32. It may be noted that lid 32 may thusly be connected to the upper margin of rear panel 64 by a flexible fabric hinge.

In an alternative embodiment, outer casing 26 may have either less than four, or more than four, panels (not shown). For example, outer casing 26 may be configured to have one continuous panel defining a round wall, thereby forming a right cylinder, or some other generally rounded shape.

In the preferred embodiment, connected panels 62, 64, 66 and 68 each have an upper, or distal, edge 72, 74, 76 and 78, respectively, which in the case of edges 72, 76 and 78 is also a free edge, and edge 74 being a fabric hinge, the four edges co-operating to define container opening 80 through which receptacle 30 may be placed into compartment 48. Lid 32 is hingedly, or pivotally attached to rear panel edge 74. Rather than employing a zipper (or, optionally, in addition to a zipper, if a zipper is desired), internal structural member 34 engages the mouth of receptacle 30 in a relatively tight interference fit, thus effectively securing lid 32 to inhibit heat transfer to and from

chamber 50. A strap, or flexible handle 82 is grasped to release the mating portions of a hook and eye fabric strip securement 84 (e.g., Velcro, t.m.) mounted to handle 82 and front panel 62 respectively, and to permit the interference fit seal of lid 32 inside receptacle 30 to be broken, and lid 32 moved pivotally about its rearward hinged edge between the closed, or sealed position, and an open, and unsealed, position.

Outer casing 26 may have shoulder strap 54 attached thereto, for example, at side panels 66 and 68. As noted above, outer casing 26 may also have an auxiliary portion or pouch 24. Pouch 24 may have a see-through mesh pocket 86, such as may be convenient for viewing the contents thereof, which may include knives, forks, spoons or other objects.

Figure 2g shows the general structure of a cross-section of any of the insulated wall panels, such as left hand side wall panel 68 with receptacle 30 and partition 46 in place. A scab section of bottom panel 60 is also shown to reveal its layers of construction, as is a scab section of thermal storage member 40. With the exception of auxiliary pouch 24, this section is typical not only of front panel 62 but also, generally, of rear panel 64, side panels 66 and 68, bottom panel 60. The outer facing layer of the panel (be it 62, 64, 66 or 68) is an outer skin in the nature of a canvas covering layer 88 for resisting abrasion. It overlays an intermediate thermal insulation medium, such as may be in the nature of closed cell foam insulation layer 92 for impeding, which is to say discouraging, heat transfer between the interior of container assembly 20 and external ambient. The inner face of insulation layer 92 is covered by an inner skin in the nature of a flexible sheet 90, whether of vinyl (t.m.) or of plasticised metallic foil sheeting that is shiny and reflective. The metallic foil sheeting material may be the type sold under the name Therma-Flect (t.m.). The inside of compartment 48 is lined with white vinyl sheeting on its forward and bottom sides.

This same general structural arrangement prevails in bottom panel 60, although outer covering layer 96 may be a rather thicker, scuff-resistant material than the outer skin of the upwardly extending side walls.

Notably, in the example illustrated in Figure 2g, the bottle of liquid 58 rests upon thermal storage element 40, which, in this view being shown in one of its alternate positions, is seated, resting on the bottom of receptacle 30. The weight in receptacle 30 is then carried into bottom panel 60, and heat transfer from thermal storage element 40 is

preferably biased (i.e., generally made easier by direct contact with item 40, rather than harder) toward the objects within receptacle 30, and generally impeded or resisted through panel 60.

5 Receptacle 30

As a preliminary matter, Figures 3g to 3n are perspective views, not orthogonal views, such that the foreshortening of the taper of the walls appears to be pronounced in an exaggerated, or somewhat disproportionate fashion. A top view, with partition 46
10 removed, and a bottom view, in Figures 3e and 3f, respectively, and a top view of an alternate embodiment, shown in Figure 6b, provide a contrasting analogous orthogonal view.

Referring to Figures 3a to 3n, receptacle 30 is preferably configured to be the
15 same general size and shape as compartment 48 so that receptacle 30 may be placed within compartment 48 and lid 32 may be closed using flexible handle 82 to contain receptacle 30. While receptacle 30 preferably conforms to compartment 48, it may have some other configuration that fits within compartment 48. For example, receptacle 30 may have fewer than four, or greater than four walls. In an alternative embodiment,
20 receptacle 30 may be configured to have one continuous wall defining a round cylindrical segment or another generally rounded shape.

In the preferred embodiment, receptacle 30 has a base or bottom wall indicated as
bottom 98, a receptacle front wall 100, a rear wall 102, and a pair of right and left hand
25 side walls 104 and 106. Each wall 100, 102, 104 and 106 is preferably generally located at a generally square corner to two adjacent walls, aside from the slight generally flared taper of the adjacent walls. For example, wall 102 is located adjacent wall 104 at one end of wall 102, and adjacent wall 106 at an opposite end of wall 102. Bottom 98 is be attached to all four walls 100, 102, 104 and 106, along edges thereof, the general
30 structure of receptacle 30 being a molded plastic part such as may be used to contain liquids. Walls 100, 102, 104 and 106, and bottom 98, co-operate to define an interior surface 108 of receptacle 30, which bounds chamber 50. Bottom 98 and walls 100, 102, 104 and 106, each are preferably generally rectangular in shape with opposite walls 100 and 102, and 104 and 106, being substantially congruent to one another. In this
35 configuration, chamber 50 has a generally cube-like or rectangular parallelepiped shape

having contours, as described in detail below. It should be noted that receptacle 30 may be configured without a bottom 98.

Walls 100, 102, 104 and 106 extend from receptacle bottom 98, and each wall terminates at free edges 110, 112, 114 and 116, respectively. Free edges 110, 112, 114 and 116 together define a receptacle rim, or edge 118 of generally rectangular plan form, with radiused corners. Receptacle edge 118 is preferably generally equidistant from bottom 98 (i.e., lies in a parallel, upwardly spaced plane) and defines a receptacle opening 120 by which to obtain access to chamber 50. While bottom 98 is generally planar, it may alternatively have portions defining indents (not shown) that conform to the profiles of one or more items to be contained within receptacle 30. Such indents may inhibit movement of these items when placed within the indents corresponding to their respective profiles.

Receptacle 30 is preferably rigid to provide a degree of protection to items stored therein from external forces caused, for example, by bumping, jostling, or knocking of container assembly 20 when it is transported or otherwise used. At the same time, receptacle 30 may tend to be sufficiently lightweight that it may not make container assembly 20 unduly heavy to carry when container assembly 20 is filled with items such as bottles of liquid 58 or sandwiches. A plastic, for example, may be used to form receptacle 30. A relatively tough plastic is preferred because it may tend to resist breakage, it can contain melting ice and spilled liquids, and it may be readily cleaned.

Receptacle 30 may be stiffened further by including one or more strengtheners, such as an array of ribs 122, that extend in a generally upwardly direction from bottom 98, to increase the rigidity of receptacle 30. Ribs 122 may be either attached to, or preferably be formed integrally with, receptacle 30. Each wall 100, 102, 104 and 106 preferably has at least one rib 122, which at least partially traverses an external surface thereof. As shown, for example, in Figures 3a and 3b, ribs 122 are generally parallel to one another, and originate adjacent bottom 98, extending from bottom 98 and ending at a rib terminus 124. While rib terminus 124 may be located at or adjacent receptacle edge 118, it is preferably located at some intermediate height between bottom 98 and receptacle edge 118. While any of 1/4, 1/3, 1/2, 2/3, or 3/4, or some other suitable proportion may be chosen, in the preferred embodiment, terminus 124 is roughly 1/2 way between bottom 98 and rim 118. In this intermediate position, rib terminus 124 may also

meet interior shoulder 126 which may be used to support partition 46, as described in further detail below.

5 The interior surface 108 of receptacle 30 has at least one guide 128 for receiving or engaging a portion of partition 46, for example, an edge, such as edge 130 (as shown in Figure 3e; and described in further detail below). Guide 128 may be added to, or, preferably be made integrally with, receptacle 30. In the preferred embodiment, guide 128 is integrally formed with a wall, such as wall 100 or 102, of receptacle 30, and is oriented so that an edge, for example edge 130, of partition 46 may be placed therein.
10 When partition 46 is held by guide 128, it is preferably oriented to at least partially divide chamber 50. Most preferably, the internally facing surfaces of the integrally molded wall feature of rib 122 also function as guide 128.

15 Guide 128 may be in the nature of a rebate, groove or fluting, and may be substantially linear to permit partition 46 to be slidingly received therein. Guide 128 may be located to correspond to the location of a rib 122 so that guide 128 is defined within rib 122. Accordingly, guide 128 originates adjacent bottom 98, and extends along interior surface 108, from bottom 98, and ends at a guide terminus 134, which may corresponds to rib terminus 124. Guide terminus 134 may be located at or adjacent
20 receptacle edge 118, but is preferably located at some mid-point between bottom 98 and receptacle edge 118 adjacent interior shoulder 126. A longitudinal axis of guide 128 may be substantially perpendicular to a plane of bottom 98.

25 Guide 128 need not be the same length as rib 122; it need only be of sufficient length to receive at least part of an edge (such as edge 130) of partition 46 to inhibit movement thereof in a direction transverse to a longitudinal axis of guide 128. Receptacle 30 may alternatively be formed with guide 128 (and, if desired, rib 122) oriented at an angle other than at 90 degrees relative to bottom 98. This would in turn alter the orientation of a received partition 46. If rib 122 and guide 128 are aligned, then
30 rib 122 both strengthens receptacle 30 and defines guide 128. This arrangement may also facilitate the manufacture of receptacle 30 if, for example, it is made by injection moulding. In the preferred embodiment, guide 128 is configured to be substantially straight for receiving a substantially straight edge 130 of partition 46.

35 Receptacle 30 may be provided with additional guides 128 for receiving edge 130 of partition 46, for example. Two guides 128 may co-operate and each receive an edge of

partition 46, such as edges 130 and opposite edge 132, to inhibit movement of partition 46 (as shown in Figure 3g). The provision of multiple guides 128 within receptacle 30 permits chamber 50 of receptacle 30 to be sub-divided in different ways depending on which guides 128 are used for receiving partition 46 (as further explained below).

Each guide 128 is preferably bounded by generally parallel edges or boundaries, which have a concave rounded or arcuate intermediate portion 136 therebetween. The rounded intermediate portion 136 may facilitate the manufacture, for example by moulding, of receptacle 30, may increase the stiffness of the structure more generally, and may serve to provide a nesting curvature for a round cylindrical container, such as a bottle or can that may be placed in receptacle 30.

Receptacle 30 may also have a shoulder 126 for supporting partition 46, or a portion of partition 46, in a generally horizontal orientation, such as to function as a shelf or partial shelf. Shoulder 126 extends along interior surface 108, and is preferably located between receptacle edge 118 and bottom 98. In the preferred embodiment, shoulder 126 extends along the perimeter of interior surface 108 at a height intermediate to the bottom and the upper rim, preferably generally about halfway between the two. To reduce material in an alternate embodiment, shoulder portions in the nature of inwardly extending flutes of partial height, may instead be implemented to support partition 46. Shoulder 126 projects from interior surface 108, and may present a surface 140, that is generally planar and parallel to bottom 98. Subject to the existence of intermediate arcuate portions 136, surface 140 may have a generally uniform width, and may have gaps 142 therein where guides 128 intersect shoulder 126. Each gap 142 corresponds to a guide terminus 134.

In the preferred embodiment, receptacle 30 has six generally parallel guides 128: three sets of opposed guides located in opposed walls 100 and 102, respectively. In an alternate embodiment it may also have two sets of opposed guides in opposed walls 104 and 106. Each guide 128 may be spaced on generally equal, regular pitches along walls 100, 102, 104 or 106.

As noted above, wall portions between adjacent guides 128 may be configured to accommodate items that may be typically stored within receptacle 30, such as beverage bottles 58. For example, a wall portion 136, located between two guides 128, may be generally arcuate, or some other shape, so that it conforms to a profile of a bottle 58.

Similarly, a corner wall portion **144** may conform to a profile of bottle **58** and define a corner of receptacle **30**. An axis of the apex of each wall portion is preferably substantially parallel to guides **128**, and each guide and its adjacent arcuate portions have substantially linear co-terminating boundaries **146**. While in one embodiment the width of shoulder surface **140** may be roughly uniform, it may vary to correspond to the profile of the wall portions, such as corner wall portion **144**.

In the alternate, preferred embodiment of Figure **6b**, a receptacle **138** is shown that does not have arcuate wall portions, or arcuate corner molding portions, but rather substantially planar walls, with corner radii, giving a smoother, and simpler, style of construction.

If receptacle **30** is configured to be substantially the same size as compartment **48**, (or, that is of a corresponding size that fits well therein) then spaces or gaps **94** between receptacle **30** and one or more of walls **62**, **64**, **66** and **68**, may be reduced. A smaller gap **94** may reduce the likelihood that spilled liquids, food, or such other matter may find its way between the inwardly facing wall surfaces of soft sided wall structure **28** and the outwardly facing surfaces of receptacle **30**, which may tend to reduce the frequency with which compartment **48** requires cleaning. Gap **94** may be reduced by configuring receptacle edge **118** to have a reinforcement or stiffener in the nature of a flange or lip **148**. Lip **148** may extend peripherally along receptacle edges **110**, **112**, **114**, **116** and is preferably located adjacent one or more of outer casing free edges **72**, **74**, **76** and **78** when receptacle **30** is positioned within outer casing **26**. This proximity of lip **148** to free edges **72**, **74**, **76** and **78**, may tend to reduce the size of a gap **94** that may form between the flexible outer casing **26** and receptacle **30**. By reducing the size of gap **94**, matter such as a spilled liquid may be encouraged either to be caught within receptacle **30** or repelled by any portion of the exterior surface of outer casing **26**. Lip **148** may have a generally L-shaped cross-section forming a step in receptacle edge **110**, **112**, **114** or **116** as may be, and may project outwardly and away from walls **100**, **102**, **104**, **106**, and chamber **50** in a generally horizontal plane. Lip **148** may alternatively or additionally be arcuate, rounded or have some other shape that projects from walls **100**, **102**, **104**, **106** to discourage the passage of matter between outer casing **26** and receptacle **30**. (Figure **2g**).

Partition 46

Referring to Figure 8a, partition 46 may be positioned or located within receptacle 30 to sub-divide chamber 50 in at least two different ways, as shown, for example in Figures 3g to 3n. By sub-dividing chamber 50, the movement of items stored within chamber 50 may be inhibited, which may limit the extent to which they come into damaging contact with one another, and with walls 100, 102, 104, 106 and bottom 98, when container assembly 20 is transported or moved. Partition 46 may be made of a substantially rigid material so that it may tend to resist deformation when contacted by items stored in receptacle 30. As discussed in further detail below, one or more guides 128, and shoulder 126, or both, may co-operate with partition 46 to inhibit its movement within receptacle 30 when it is located to sub-divide chamber 50.

Positioning and configuring of partition 46 may be facilitated by providing partition 46 with a first hinged connection 150 therein. Hinged connection 150 separates partition 46 into at least a first partition portion 152 and a second partition portion 154. First and second portions 152 and 154 are joined to one another along hinged connection 150, and are movable relative to one another about hinge 150.

A portion of partition 46, which traverses partition 46 between first and second portions 152 and 154, preferably defines a living plastic hinge 156. Hinge 156 preferably has a thickness which is less than the thickness of the web of at least one of the first and second portions 152 and 154, and the peripheral flange, or edge 158, standing perpendicular to the general plane of the intermediate, transversely extending webs, is relieved, (by being chamfered, or bevelled down) in the region of the hinge. If partition 46 is moulded from a plastic then hinge 156 may be integrally formed therein.

Hinge 156 may alternatively be formed using a flexible joining member such as an adhesive tape attached to both first and second partition portions 152 and 154 (not shown). Alternatively, hinge 156 may be formed by laterally inserting a pivot member such as a pin through one or more projections extending from each of first and second partition portions 152 and 154, respectively. First and second partition portions 152 and 154 may then rotate about the pin connecting them.

In the preferred embodiment, first and second partition portions 152 and 154 may be generally planar, and may be connected or mounted along adjacent edges thereof. In

this configuration, the angular displacement of first and second portions **152** and **154** relative to one another about hinge **156** may be varied. For example, partition **46** may be configured to be generally planar when first and second portions **152** and **154** are co-planar (see Figure **3i**), and may be configured to be generally L-shaped when first and second portions **152** and **154** are generally at right angles relative to each other (see Figure **3n**).

In the preferred embodiment, partition **46** has third partition portion **160** attached to second partition portion **154**, and fourth partition portion **162** attached to third partition portion **160** as shown in Figure **3h**. Portions **160** and **162** may be attached using second and third hinges **164**, **166** which may be configured in a manner similar to hinge **156**, as described above. Hinges **156**, **164** and **166** are preferably parallel to one another, permitting multi-position partition **46** to be placed in a variety of different configurations: generally planar when portions **152**, **154** and **160** and **162** are co-planar (see Figure **3h**); generally L-shaped (Figure **3g**) when one or two of portions **152** or **154**, **160** or **162** is (or are) rotated about one of the hinges (**156**, **164** or **166**) to be generally perpendicular to the remaining two portions (see Figures **3g**, **3i**, **3j**, **3l**, and **3n**); and generally U-shaped when portions **152** and **162** are rotated towards each other about hinges **156** and **166**, respectively, until they are generally perpendicular to intermediate portion **154** and **160**. (See Figures **3k** and **3m**). A great number of permutations are possible, and may be employed according to the needs of the user.

Referring to Figure **3h**, when in a generally horizontal planar orientation, the plan form of partition **46** is preferably congruent to a shape defined by an intersection of support surface **140** and receptacle interior surface **108**. That is, the periphery of the divider is generally similar in plan form to the plan form of the shelf defined by the shoulder at the transition of section of the wall structure of receptacle **30**. This permits partition **46** to lie within receptacle **30** and to be supported about its margin by shoulder **126**. In this configuration, partition **46** divides chamber **50** into a first sub-chamber **168** adjacent bottom **98**, and a second sub-chamber **170** adjacent opening **120** (best seen in Figure **2g**). Items stored within each sub-chamber **168** and **170** may be kept separate by first placing one or more items into sub-chamber **168**, placing partition **46** onto shoulder **126**, and then placing one or more additional items onto partition **46** for storage within sub-chamber **170**. Alternatively, or additionally, a thermal storage element, such as a hot pack or an ice pack, or such as discussed more fully below, can also be located upon partition **46** amidst the objects contained in container assembly **20**.

Access to items in sub-chamber 168 may be obtained by moving, e.g., pivoting or lifting, one or more of panels 152, 154, 160 and 162 away from sub-chamber 168. To move panels of partition 46, partition 46 may be grasped through one or more holes therein, as described below.

Referring to Figures 3g to 3n, partition 46 may also be configured to partially sub-divide chamber 50 when partition 46 has a general L-shape. In this configuration, the peripheral edges of one portion, for example portion 152, may be placed in, or slidingly engaged with, a pair of opposed guides 128. The remaining portions 154, 160 and 162, lying perpendicular to portion 152, may be supported by shoulder 126. Items stored between partition 46 and bottom 98 may be separated from items placed onto portions 154, 160 and 162. Items may additionally be placed on a portion of bottom 98 that is exposed even when partition 46 is in place. If the distance between partition portions 154, 160 and 162 and bottom 98 is substantially the same as the width of portion 152, then items placed on bottom portion 162 may be separated by portion 152 from items placed on the portion of bottom 98 that is enclosed by partition 46. In the preferred embodiment, portions 152, 154, 160 and 162 all have substantially the same width, and shoulder 126 is displaced from bottom 98 by a distance that may be roughly equal to two times the width of one of these portions. Although it is preferred that they be roughly equal quarters, it should be noted that portions 152, 154, 160 and 162 may have substantially different widths. The distance between bottom 98 and shoulder 126 may vary between embodiments. For example, a greater distance may be used when constructing a receptacle 30 for containing wine bottles than when constructing a receptacle 30 for containing beer bottles.

Edges of portion 160, 162 and portion 154, may be inserted into respective opposed guides. Once so inserted, portion 152 may be pivoted about hinge 156 to be supported by shoulder 126, and to provide an alternate division of chamber 50. In this configuration, the distal end 168 of portion 162 is located adjacent bottom 98. Many alternate positions are possible as illustrated in the Figures. These different configurations of partition 46 may permit items of various dimensions to be stored within receptacle 30. If a different configuration of partition 46 is required, partition 46 may be manually removed, reconfigured and repositioned, as needed.

As noted above, partition **46** may preferably have a stiffener in the nature of a rim or flange **158**. Flange **158** preferably extends about at least a portion of the periphery of partition **46**. Flange **158** may project generally perpendicularly to the transverse web **172** of partition **46**, to form either an L-section (an angle) or as a T-section. A T-section is preferred as shown in Figure **21**. Flange **158** is preferably relieved adjacent all hinges.

Partition **46** may additionally have a bore, formed opening, or aperture, or apertures, such as may be in the nature of a circular holes **176**, passing through at least one of portions **152**, **154**, **160**, and **162**. Holes **176** may permit partition **46** to be grasped for removal or relocation.

Referring to Figure **2g**, hole **176** may additionally be sized to receive an item such as a vessel, for example the neck of bottle **58**, that is placed within chamber **50**. Hole **176** is preferably of the order of $1 - \frac{1}{2}$ to 2 inches in diameter, preferably about $1 - \frac{3}{4}$ inches to accommodate the neck of a wine bottle, or pop-bottle or beer bottle, and so on, while being smaller than a cross-sectional dimension of the body of the bottle. Because hole **176** is preferably at least the same size as the bottle neck cross-sectional dimension, lateral movement of the bottle neck within hole may be inhibited, for example, when container assembly **20** is carried, jostled or bumped. By inhibiting movement of the bottle neck, bottle **58** may be discouraged from toppling and spilling its contents, or coming into undesired contact with other items stored within receptacle **30**. An array of holes **176** may be located in a partition portion, such as portion **152** or **162**, to position a bottle body adjacent one of the wall portions, when bottle **58** is supported by bottom **98**, portion **152** is supported by support surface **140**, and the bottle neck extends through hole **176**.

While the preferred embodiment of the invention has three holes **176** located in each of the end quarter panel portions of partition portion **152**, **162**, one, two, or more holes may be placed in any portion, as in the alternative configurations of partitions **180** and **182** in Figures **2h** and **2i**. Partition **180** is a double fold, three portion partition (the portions being roughly equal in longitudinal extent) with two holes **176** in one of the end portions (see Figure **2h**). Partition **182** is a double fold, three portion partition, in which one portion is substantially larger and three holes **176** is in one of the end portions (see Figure **2i**).

Internal Structural Member 34

Lid 32 preferably includes internal structural member 34. The general cross-sectional structure of lid 32 may be generally as shown in Figure 4c, in which lid 32 has an outer skin 184, an intermediate layer of thermal insulating material 186, such as may preferably be a layer of closed cell foam, and an inner wall, or skin, provided by internal structural member 34. A heavy fabric strip 188 is folded over the combined edges of the fabric outer skin 184 and the external lip 190 of structure member 34 and the laminate so formed is then sewn together, the stitches passing through lip 190. In this way a thermally insulative sandwich structure is formed.

In the preferred embodiment, internal structural member 34 includes a substantially planar medial web portion, 192, that is generally rectangular in plan view (reflecting the generally rectangular plan form of container 20, more generally). An integrally formed bezel, or surround member 194 extends peripherally, and continuously, about web portion 192, much in the manner of a picture frame, or peripheral flange. Surround member 194 is generally rectangular in plan view, and interacts with the similarly rectangular plan view outline of the mouth of receptacle 30. If receptacle 30 were circular, or elliptical, or oblong, surround member 194 would also tend to be correspondingly circular, or elliptical, or oblong to permit satisfactory mating engagement, as described below. The peripherally outermost portion, or extremity, of surround member 194, is peripheral lip 190. Lip 190 lies in the plane of web portion 192 (although it need not do). Inwardly of lip 190 is an upstanding (in the view of Figure 4c), outwardly facing wall member 196. Wall member 196 terminates at an end wall portion 198 that extends in a plane generally parallel to the plane of web portion 192 (although end wall portion 198 could be a continuously radiused portion, or could be bevelled, as may be).

Lying peripherally inwardly spaced from outwardly facing wall member 196, is a generally inwardly facing wall member 200, that extends between the peripheral margin of web portion 192 and the inward margin of end wall portion 198. Inwardly facing wall member 200 has a number of sockets, or female engagement fittings 202 in the nature of round holes 204 formed therein for receiving protruding male engagement fittings 206 of thermal storage member 40. Two such female engagement fittings 202 are located in each of the side portions 208 of inwardly facing wall portion 200 to provide generally opposed engagement points for releasable retention of thermal storage member 40 in a

nested position snug against lid **32** as indicated in Figure **4c**. It is preferred that holes **204** be blind, or capped to form sealed sockets.

Outwardly facing wall member **196** includes a seal member, or sealing fitting, **210**, in the nature of an externally oriented bead **212** of marginally greater peripheral dimension than the land region **214** of an opposing wall of receptacle **30** at the mouth thereof with which bead **212** engages in an interference fit when lid **32** is moved to a closed position relative to chamber **50**. As such, bead **212** provides a sealing means for discouraging leakage from receptacle **30** in the event of mishandling. That is, bead **212** engages the distal portion, or bead engaging land region **214** of a peripheral wall of receptacle **30** in an interference fit. The general structure of surround member **194** is somewhat resilient, and, by being formed in the bent shape illustrated, is somewhat like a spring when deflected, thus providing biasing against the tendency of bead **212** to be deflected by the rim, or flange, **118**, of receptacle **30** when engaged in an interference fit. This may tend to provide a reasonable tendency to maintain a seal, without being unduly resistive to the opening of lid **32**.

As noted above, lid **32** has a handle, or draw, or release member, namely handle **82**, that is attached externally to lid **32**, and that has a hook and eye fastening member (e.g., Velcro, t.m.) mounted on the inside of the tip thereof for engaging a mating hook-and-eye securement fitting **84** mounted to the forward facing region of front panel **62** below the upper margin thereof. When secured, the release member **82** may tend to secure, or lock lid **32** in place. When lifted, the release member **82** may tend to aid in disengaging lid **32** from receptacle **30**.

It may be noted that bead **212** is formed by having a cross section or a continuously radiused outer quarter round **216**, that terminates at the straight portion **218** of outwardly facing wall portion **196** at a jog, or dog-leg **220**. An alternative style of seal member is shown in Figure **4e**, where the straight portion **222** of an outwardly facing peripheral wall member **224** has an outwardly protruding, half round bead **226** of smaller radius than quarter round **216**, inset a distance δ from end wall **228**. Once again, introduction of the surround member into the mouth of receptacle **30** will tend to cause bead **226** to be squeezed, thus tending to make a seal.

Further, where no internal thermal storage medium space is provided in lid **32**, a different surround member **230** may be used as shown in Figure **4d**. In this instance,

surround member **230** has an inclined inwardly facing wall member **232**, in place of the straight wall, **200**. In this example, as well, lid **32** is not provided with a thermally insulative layer such as insulating material **186**, but rather, merely has an external fabric layer **234**. That is, lid **32** may be insulated as in Figure **4c**, or uninsulated as in Figure **4d**.
5 Lid **32** may have a surround member as in Figure **4c**, and no insulation, or, alternatively, lid **32** may have a surround member as in Figure **4d** with insulation.

In use, advancement of internal structural member **34** toward receptacle **30**, as by pivoting motion about the fabric hinge joining lid **32** to rear panel **64**, may tend to cause
10 the progressive introduction of internal structural member **34**, and most particularly, of peripherally extending seal fitting **210**, into an interference fit engagement with the land region, **214**, of the mouth of receptacle **30**, just inside lip **118**. As lid **32** is pushed further, more of seal fitting **210** engages land region **214**, until there is, ideally, contact about the entire periphery of land region **214** and the entire periphery of internal
15 structural member **34** at the contact interface of seal fitting **210** with land region **214**.

When this occurs, bead **212** may tend to want to compress, and in so doing, a hoop stress may be generated in each of land region **214** and the outer wall **196** of internal structural member. This hoop stress, or peripheral, or circumferential stress,
20 may tend to be a tensile stress in land region **214**, and a compressive stress in outer wall **196**, running in the peripheral direction. In an alternate embodiment, receptacle **30** may have a lip that engages a structural member of an alternate lid, otherwise generally similar to lid **32**, on an inside, or inwardly facing peripherally extending wall, such that the land region of the receptacle would be in peripheral compression, and the engaging
25 region of the lid would be in peripheral tension. It may also be noted that the surround portion of internal structural member **34** is, in effect, a short cantilevered beam extending perpendicularly to the plane of web **192** of lid **32** generally. Lateral external compression of bead **212** may tend to generate a resistive restoring moment couple in outer wall **196** (in tension in a direction perpendicular to web **192**), and in corresponding
30 compression in inner wall **200**.

As may be noted, the interface of seal fitting **210** with land region **214** is intended to be sufficiently tight that it may tend to resist re-opening. To that extent, the interface between lid **32** and the lower portion **22** of container assembly **20** may tend not to require
35 a zipper, and may be zipperless, that is, free of any peripheral tracked fastener.

Thermal Storage Element 40

Thermal storage element **40** is shown in Figures **5a** to **5f**. Thermal storage element has a first, generally planar main side **240**, and an opposed, spaced apart, generally parallel opposite main side **242**. The margins of sides **240** and **242** are peripherally joined by side edge walls **244**, **246**, and end walls **248** and **250**, these elements co-operating to form a hollow container having a space **236** therein for containing a thermal storage medium **238**. In the preferred embodiment, this thermal storage medium **238** is water, whether hot, cooled, or frozen.

End wall **248** is a “filler end” wall, having a rebate, or relief in the nature of a cusp **252** of constant circular arcuate shape formed inwardly therein, and a threaded spout **254** moulded centrally in cusp **252**, with a removable matingly engageable threaded cap **256** mounted on the spout. A user is thus able to fill thermal storage element **40** with water (or, indeed, with any other suitable thermal storage medium), to put thermal storage element in the freezer to freeze (or, alternatively, to put hot water, or other suitable heated thermal storage medium therein), and then, with cap **256** securely in place, to put thermal storage element in container assembly **20**. A similar cusp **258** is formed in end wall **250** directly opposite cusp **252**, and provides a ready hand engagement point, or hand hold, or grip, for disengaging thermal storage element **40** from internal structural member **34**. As noted above, end walls **248** and **250** also have externally protruding nubbinses, or blisters, detects or stubs in the nature of male retention fittings **206** for engaging the corresponding female retention, or engagement fitting **202** of surround member **194**. It will be understood that the male fittings could be formed on the surround, and the female fittings could be formed on the thermal storage element. As the fit between the male and female engagement fittings is an interference fit, the adjacent portion of the inwardly facing surround wall must be deflected (and against its biasing force), such that the fittings **206** and **202** may tend to snap in place when matingly seated. Removal is by reaching into cusp **258**, and disengaging thermal storage element **40**.

The obverse face (that is of opposite main side **240**) of thermal storage member **40** has a pair of recesses, or depressions **260** and **262** formed therein, the depression have a waist **264** and arcuate end portions **266**. Arcuate portions **266** are generally circular arcs, and have a diameter suited to accommodating the bottom of a beverage container, such as a bottle or a drink can. Thermal storage member **40** can act as a seat for drinks either when lid **32** is open, and supported in a generally flat position, or when thermal

storage member is supported in some other relatively flat orientation, such as when mounted on the bottom of receptacle 30 or when seated on partition 46 in a generally horizontal shelf configuration. Alternatively, and quite conveniently, thermal storage member 40 can be removed from container assembly 20, and set on a flat surface, such as a table, and drinks placed on it, or, if laid on the other side (with recesses 260 and 262 facing downward) with appetisers or other foods kept warm or cool on top of member 40 as may be suitable.

It is not necessary that container assembly 20 employ thermal storage element 40 in the lid only. On the contrary, thermal storage element 40 may be placed upon partition 46, or upon the bottom of receptacle 30, as may suit the user. Furthermore, it is not necessary that container assembly 20 be provided with only one thermal storage member 40, but could be provided with two, or three or several, whether supplied with container assembly 20 as part of the kit, or as an additional accessory made separately available at the point of sale.

An alternate thermal storage member arrangement is shown in Figure 4g, in which an internal structural member 270 for placement in a lid structure, such as lid 32, and otherwise similar to member 34, has female engagement fittings 272 along the long edges 274 of its rectangular, inwardly facing wall portion 276. In this instance two thermal storage members 278, 280 are provided in a snap fit, side-by-side configuration. Thermal storage members 278, 280 are substantially the same as thermal storage member 40 in terms of construction, and the shape and size of recesses 282, threaded filler spouts 284 and caps 286, however with male engagement fittings 288 being mounted transversely as compared to thermal storage element 40. The principle difference is that members 278, 280 are "half size" versions of storage member 40. The use of two thermal storage members permits one, or both, to be used in the lid; one in the lid and one in the bottom of receptacle 30, both in the bottom of receptacle 30, or one or another on a shelf formed by partition member 46. It may thus tend to offer greater flexibility of variable configurations. As with thermal storage element 40, more than two thermal storage elements could be provided.

Auxiliary Wall Structure 24

Auxiliary wall structure 24 includes an outwardly and upwardly extending flap 294, a side wall 296, and a tracked closure member in the nature of a zipper 298 operable to

control access to the interior of the space 300 defined between flap 294 and side panel wall 296. Flap 294 has an arcuate, padded lower portion 302 having a first margin attached to front panel 62, near the juncture of front panel 62 with bottom panel 60. Padded lower portion 302 extends upwardly and outwardly from that edge to an arcuate lateral seam 304.

5 A padded, generally planar (when not pulled open) upper portion 306 extends upward from the upper margin of lower portion 302. Upper portion 306 has an external mesh pocket mounted thereto. Side wall 296 is formed in a U-shape, having depending lower portions 308 that are mated to lower portion 302, upwardly extending side portions 310, 312, and a curved central portion 314 extending therebetween, the inner margins of items 310, 312 and

10 314 being sewn to the front face of front panel 62 of first insulated container portion 22, and the outer margins having one half of a tracked closure member, in the nature of zipper 298 mounted thereto, for co-operation with the other half of zipper 298 that is mounted to the upper margin of flap 294, to whose shape the outer margins of items 310, 312, 314 conform. Upper curved central portion 314 has an eyelet 318, of two overlapping flaps to

15 admit an electronic jack, or plug 320, of a head set such as may be plugged into an entertainment unit, which may be a music playing device, such as device 322, which may be a CD player, a cassette player, a portable radio, or, as in the preferred embodiment, an entertainment unit combining all three capabilities. An internal pouch 324 having an elasticised upper lip 326 is provided for receiving the entertainment unit, and such cassettes

20 or compact discs as may be desired by the user. Alternatively, item 324 may have an internal space 330 suitable for accommodating knives, forks, spoons, napkins, and other items such as may be desired for a picnic. Internal gussets 332 extend between the lateral margins of pouch 324 and the opposed margins of front flap 294 acting to limit the extent to which flap 294 can be opened, and thereby discouraging it from opening to such an extent

25 that objects contained therein may too easily fall out. The termination points of zipper 298 extend to a lower height than the upper margins of gussets 332. A generally triangular lifting lug is mounted to front panel 62 adjacent to eyelet 318. While item 324 is not thermally insulated, flap 294 is fabricated with an internal layer of rubberized padding that is intended to provide a measure of protection against rough handling to such electronic

30 equipment or other objects as may be carried therein.

Alternate Lid Surface

Lid 32 may have the structure shown in Figures 4c or 4d, or some combination thereof, or, alternatively, may have the structure of alternate lid 334 shown in Figure 6a. In

35 this instance, rather than using a relatively low density closed cell foam, as in Figure 4c, a

relatively high density, relatively stiff molded foam is used to yield a generally rectangular table top portion 336 in the nature of a recess 338, having a quadrilateral four sided (preferably square or rectangular) peripheral containment wall 340 such as may tend to discourage objects from sliding away, even if lid 334 is not precisely level, or if container assembly 20 is bumped or jostled, or carried in an automobile. Lid 334 also has a pair of circular recesses, or depressions 342, having annular sidewalls that may, again, tend to serve to steady a beverage placed thereon. Such a lid as 334 may provide a convenient containment surface for foods and beverages at a lunch stop or picnic. In a preferred embodiment, recess 338 may be roughly 6" (+/-) long x 6" (+/-) wide by about 1/2" (+/-) deep, and depressions 342 may be about 3/8" (+/-) deep, and may be sized comfortably to receive a 12 oz (385 mL) drink can.

Figures 7a to 8h

Figures 7a to 8h show views of an alternate embodiment of a container assembly to that of Figure 1a. Container assembly 360 is substantially similar to container assembly 20, and to the extent that they share common features, those features are given common items numbers, although they may differ in size, shape, or aspect ratio. Soft-sided insulated container assembly 360 may differ from container assembly 20 in that container assembly 360 may have a clear front wall panel 362 that does not have an auxiliary wall structure, such as auxiliary pouch 24 mounted thereto. Further, while container assembly 360 may have a receptacle 364, and a multi-position removable pliable divider, identified as partition 366, and a mating lid 368 having a seal member 370 engageable with the land region 372 adjacent to the lip edge of the mouth of receptacle 364, container assembly 360 may not include a removable thermal storage element similar to removable thermal storage element 40 described above.

It may also be noted that container assembly 360 has a different aspect ratio from container assembly 20, being roughly twice as wide along the long face as along the short face when viewed from above. Partition 366 is an asymmetric divider having a first panel portion 374 of roughly half size, a second panel portion 376 hingedly adjacently connected thereto of roughly one quarter size, and a further end portion 378 hingedly connected to portion 376 and having two apertures 380 similar to those described above.

In an alternate embodiment, a thermal storage element of corresponding aspect ratio, otherwise like thermal storage elements 278 or 280, may be installed in removable

engagement in lid 368, in a manner analogous to that described above. Whether or not such provision is made, thermal storage elements akin to thermal storage element 40 may be place within container assembly 360, either at the bottom of the receptacle, or mounted on partition 366.

5

Figures 9a to 9j

A further alternate embodiment of container assembly is shown in Figures 9a to 9j. In this embodiment, a soft sided, insulated container assembly is indicated generally as 400. Container assembly 400 has a base, identified as bottom panel 402, an upstanding sidewall 10 404 having a front panel 406, a rear panel 408, a right hand side panel 410, a left hand side panel 412, and a top panel functioning as a hinged lid 414. A secondary, or auxiliary wall structure 416 is mounted to front panel 406 in the same general manner as auxiliary wall structure 24. The wall structure of panels 402, 406, 408, 410, and 412 is 15 generally as described above in the context of container assembly 20.

However, rather than having a rigid, molded, water holding internal receptacle, such as might be generally similar to receptacle 30, container assembly 400 has a peripherally running, inwardly extending reinforced cuff 420, that is generally rectangular in plan view 20 to conform to the generally rectangular opening 422 defined by the upper edges of wall panels 406, 408, 410, 412. In cross-section as seen in Figure 9i, cuff 420 has a first, generally horizontal, relatively short leg 424 that surmounts the underlying wall structure, that wall structure having an outer layer, or covering 426, typically of a relatively durable wear resistant woven nylon, an internal layer or covering of vinyl, 428, and a closed cell 25 thermal insulation layer 430 sandwiched between the inner and outer layers. It should be noted that the thicknesses of the various layers are exaggerated in Figure 9i for the purpose of illustration. Cuff 420 also has an inwardly and downwardly extending skirt, or inner leg 432. Leg 432 is relatively long as compared to leg 424. Leg 432 may have a slope of the order of between 4:1 and 10:1 in terms of rise over run, such that a tapered, or convergent 30 opening is formed, defining a peripherally extending land, or land region, 434. Cuff 420 may typically be made of a substantially rigid material, such as molded plastic. A coarsely woven covering 436 is stretched to overlie cuff 420, and is secured about its outer peripheral edge at a seam driven through an external edge trim bead 438, covering 436, the distal margin of leg 424, and the edges of inner and outer layers 426, 428.

35

A flexible, waterproof liner **440** is seamed to covering **436** at a mid-level position, and hangs downwardly over the lower margin of cuff **420**, the lower region of liner **440** conforming to the generally rectangular box defined between the sidewall panels, and resting upon base panel **402**. Liner **440** may typically be made of relatively thick waterproof vinyl, and covering **436** may tend to be made from a relatively coarse, relatively high friction woven material which may be cotton, or a cotton blend.

Lid **414** includes a molded structural reinforcement member **444** having a generally rectangular form in plan view with a generally planar peripheral edge portion **446**, a tapered transition wall portion **448**, and a generally planar rectangular central portion **450** that may lie in a plane parallel to the plane of edge portion **446**. The resultant shape may tend to resemble a rectangular pan with turned up edges and a peripheral lip. An optional layer of closed cell thermal insulation **452** may be placed inside the pan, and an external covering layer **454**, which may typically be of woven nylon, to which the insulation may be mounted, may be stretched over the pan, and secured to edge portion **446** by a seam driven through the edges of peripheral bead **456**, layer **454**, and edge portion **446**. Also secured by bead **456** is a relatively rough, coarsely woven inner lid covering **458**, such as may be made of a rough fabric material such as coarse cotton, or a blend thereof.

In use, the corresponding mating tapered faces of transition wall portion and leg **434** may tend to engage in an interference jamming fit, like a wedge, or cork, or stopper, in the mount of a bottle. This tendency is enhanced by the use of the roughened surface coverings, that are intended to provide a relatively high level of friction between the surfaces and therefore a tendency to resist, somewhat, the tendency to open unduly easily. In this case the lid is, as indicated, merely a cuff of suitable size and location to engage the interfering, protruding bull nose of the lid.

In an optional, alternate embodiment, lid **414** may be provided with a formed plastic peripheral bezel member suitable for receiving a removably engageable thermal storage element, such as removable thermal storage member **40**, described above.

Although the embodiments illustrated and described above are preferred, the principles of the present invention are not limited to this specific example which is given by way of illustration. It is possible to make other embodiments that employ the principles of the invention and that fall within its spirit and scope as defined by the following claims.